

WHAT IS CLAIMED IS:

1. A data processing device comprising:

individual data identifying means for identifying that  
each piece of data in a block of data containing one or  
5 plural pieces of data is text data or image data, and  
providing an individual data identifying result;

determining means for determining, based on the  
individual data identifying result, whether the block of  
data includes only the text data, only the image data or  
10 both the text data and the image data, and providing  
determination result;

layout means for laying out the one or plural pieces  
of data according to a layout pattern that differs depending  
upon the determination result.

15 2. The data processing device according to claim 1,  
further comprising:

control means for controlling a printing section to  
print the one or plural pieces of data on an elongated, web-  
like substrate having a width according to the layout  
20 pattern, controlling a cutting section to cut the substrate  
along the width each time the substrate is printed a  
predetermined length, and further controlling the cutting  
section to cut, when printing of the one or plural pieces of  
data has finished, the substrate along a line between a  
25 printed region and a non-printed region of the substrate.

3. The data processing device according to claim 1,  
further comprising:

line feed code detecting means for detecting, when  
determination made by said determining means indicates that  
5 the one or plural pieces of data includes only the text data,  
a line feed code that may exist in the text data;

prescribed code detecting means for detecting a  
prescribed code that may exist immediately before or after  
the line feed code detected by said line feed code detecting  
10 means; and

line feed code deletion means for deleting, when  
detection made by said prescribed code detecting means  
indicates that the prescribed code is not detected, the line  
feed code detected by said line feed code detecting means.

15 4. The data processing device according to claim 1,  
further comprising:

space character code detecting means for detecting,  
when determination made by said determining mean indicates  
that the one or plural pieces of data include only the text  
20 data, a space character code that may exist in the text  
data;

count value control means for controlling a space  
counter to increment a count value of the space counter by  
one each time when the space character code is consecutively  
25 detected from the text data, and initialize the count value

of the space counter to zero when a code other than the space character code is detected by said space character code detecting means;

count value determining means for determining, when the  
5 space character code is not detected from the text data,  
that the count value of the space counter is equal to or  
greater than two indicating that two or more than two space  
character codes consecutively exist in the text data; and

space character code deleting means for deleting the  
10 two or more than two space character codes when  
determination made by said count value determining means  
indicates that the count value of the space counter is equal  
to or greater than two.

5. The data processing device according to claim 1,  
15 further comprising:

space character detecting means for detecting that only one space character exists at a head of a first line of the text data when determination made by said determining means indicates that the one or plural pieces of data include only the text data; and

space character deletion means for deleting the one space character when determination made by said space character detecting means indicates that a space character exists at the head of the first line of the text data.

6. The data processing device according to claim 1,

further comprising:

arranging order setting means for setting, when  
determination made by said determining means indicates that  
the one or plural pieces of data includes only the image  
5 data, an order in which the one or plural pieces of data are  
arranged on a layout area; and

proportional image data producing means for producing  
a proportionally enlarged or proportionally reduced image  
data so that each piece of data is proportionally enlarged  
10 or proportionally reduced to a maximum size that fits within  
an unoccupied layout area, the proportionally enlarged or  
proportionally reduced image data being produced in the  
order in which the one or plural pieces of data are arranged  
on the layout area.

15 7. The data processing device according to claim 6,  
wherein said layout means arranges arranging in an  
orientation relative to the layout area, the proportionally  
enlarged or proportionally reduced image data on the layout  
area in the order set by said arranging order setting means.

20 8. The data processing device according to claim 7,  
further comprising divided layout area setting means for  
dividing the layout area into a predetermined number of  
partitioned areas, wherein said proportional image data  
producing means produces the proportionally enlarged or  
25 proportionally reduced image data so that each piece of data

is proportionally enlarged or proportionally reduced to a maximum size that fits within a designated one of the predetermined number of partitioned areas when the proportionally enlarged or proportionally reduced image data is arranged in an orientation relative to the layout area.

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9. The data processing device according to claim 1, further comprising area dividing means for dividing, when determination made by said determination means indicates that the one or plural pieces of data includes the text data and the image data, the layout area into a text area for laying out the text data and an image area for laying out the image data according to a predetermined ratio, wherein said layout means comprises image layout means for laying out one or more image data, each of the one or more image data having been enlarged or reduced by the same proportion, into the image area; and text layout means for laying out one or more text data in the text area.

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10. A data processing device comprising:  
line feed code/space character detecting means for  
detecting a line feed code and a space character which may exist in text data;

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prescribed code detecting means for detecting a prescribed code that may exist immediately before or after the line feed code detected by said line feed code/space character detecting means;

line feed code deletion means for deleting, when detection made by said prescribed code detecting means indicates that the prescribed code is not detected, the line feed code detected by said line feed code detecting means;

5           a space counter that is incremented by one each time when said line feed code/space character detecting means consecutively detects the space character and is initialized to zero when a code other than the space character code is detected by said line feed code/space character detecting  
10 means;

          count value determining means for determining, when the code other than the space character code is detected by said line feed code/space character detecting means, that a count value of said space counter is equal to or greater  
15 than two indicating that two or more than two space character codes consecutively exist in the text data; and

          space character code deleting means for deleting the two or more than two space character codes when determination made by said count value determining means  
20 indicates that the count value of the space counter is equal to or greater than two.

11. The data processing device according to claim 10, further comprising:

          blank line flag storing means for storing a blank line  
25 flag representing whether a character other than a space

character exists before a line feed code in one logical line;

blank line flag control means for controlling on/off of the blank line flag in such a manner that when said space counter is initialized, and when said line feed code/space character detecting means detects the line feed code and immediately before said space counter is initialized, the blank line flag is set to on, whereas when said line feed code/space character detecting means detects a code or a character other than the line feed code and the space character and immediately before said space counter is initialized, the blank line flag is set to off; and

space character deletion means for deleting one space character existing at a head of a first line of the text data if the blank line flag is on when determination made by said count value determining means indicates that the value of said space counter is not two or more than two.

12. The data processing device according to claim 10, further comprising space character deletion means for deleting all space characters existing in the logical line if the blank line flag is on when said line feed code/space character detecting means detects the line feed code.

13. A data processing method comprising the steps of:  
a) identifying whether a piece of data in a block of data containing one or plural pieces of data is text data or

image data;

b) repeating step a) with respect to each piece of data contained in the block of data;

5 c) determining whether the one or plural pieces of data as identified in step a) include only the text data, only the image data, or both the text data and the image data; and

10 d) laying out the one or plural pieces of data according to a layout pattern that differs depending upon the result of determination in step c).

14. The data processing method according to claim 13, further comprising the steps of:

15 e) controlling a printing section to print the one or plural pieces of data on an elongated, web-like substrate having a width according to the layout pattern, controlling a cutting section to cut the substrate along the width each time the substrate is printed a predetermined length, and further controlling the cutting section to cut, when printing of the one or plural pieces of data has finished, 20 the substrate along a line between a printed region and a non-printed region of the substrate.

15. The data processing method according to claim 13, further comprising the steps of:

25 f) detecting, when determination made in step c) indicates that the one or plural pieces of data includes



only the text data, a line feed code that may exist in the text data;

g) detecting a prescribed code that may exist immediately before or after the line feed code detected during detection of the line feed code in step f); and

h) deleting, when detection made in step g) indicates that the prescribed code is not detected in step g), the line feed code detected in step f).

16. The data processing method according to claim 13, further comprising the steps of:

i) detecting, when determination made in step c) indicates that the one or plural pieces of data include only the text data, a space character code that may exist in the text data;

j) incrementing a count value of a space counter by one each time when the space character code is consecutively detected from the text data, and initializing the count value of the space counter to zero when a code other than the space character code is detected in step i);

k) determining, when the space character code is not detected from the text data, that the count value of the space counter is equal to or greater than two indicating that two or more than two space character codes consecutively exist in the text data; and

l) deleting the two or more than two space character

codes when determination made in step k) indicates that the count value of the space counter is equal to or greater than two.

5 17. The data processing method according to claim 13, further comprising the steps of:

m) detecting that only one space character exists at a head of a first line of the text data when determination made in step c) indicates that the one or plural pieces of data include only the text data; and

10 n) deleting the one space character when determination made in step m) indicates that a space character exists at the head of the first line of the text data.

18. The data processing method according to claim 13, further comprising the steps of:

15 o) setting, when determination made in step c) indicates that the one or plural pieces of data includes only the image data, an order in which the one or plural pieces of data are arranged on a layout area; and

20 p) producing a proportionally enlarged or proportionally reduced image data so that each piece of data is proportionally enlarged or proportionally reduced to a maximum size that fits within an unoccupied layout area, the proportionally enlarged or proportionally reduced image data being produced in the order in which the one or plural  
25 pieces of data are arranged on the layout area.

19. The data processing method according to claim 18, wherein in step d), the proportionally enlarged or proportionally reduced image data are laid out in an orientation on the layout area in the order set in step c).

5 20. The data processing method according to claim 19, further comprising the step of q) determining the orientation in which the proportionally enlarged or proportionally reduced image data are laid out on the layout area so that a firstly produced image data has a size that  
10 fits within the layout area.

21. The data processing method according to claim 18, further comprising the step of r) dividing the layout area into a predetermined number of partitioned areas, wherein the proportionally enlarged or proportionally reduced image  
15 data are produced so that each piece of data is proportionally enlarged or proportionally reduced to a maximum size that fits within a designated one of the predetermined number of partitioned areas when the proportionally enlarged or proportionally reduced image data  
20 is arranged in the orientation.

22. The data processing method according to claim 13, further comprising the step of s) dividing, when determination made in step c) indicates that the one or plural pieces of data includes the text data and the image  
25 data, the layout area into a text area for laying out the

text data and an image area for laying out the image data according to a predetermined ratio. and wherein said step d) comprises d1) laying out one or more image data, each of the one or more image data having been enlarged or reduced by the same proportion, into the image area; and d2) laying out one or more text data in the text area.

23. A data processing program comprising:

an identification program for identifying whether a piece of data in a block of data containing one or plural pieces of data is text data or image data;

a repeat program for repeatedly executing said identification program with respect to each piece of data contained in the block of data;

a determination program for determining whether the one or plural pieces of data as identified through the execution of said repeat program include only the text data, only the image data, or both the text data and the image data, and providing a determination result; and

a layout program for executing layout of the one or plural pieces of data according to a layout pattern that differs depending upon the determination result.

24. The data processing program according to claim 23. further comprising:

a print program for instructing to print the one or plural pieces of data on an elongated, web-like substrate

having a width according to the layout pattern used in said layout program,;

5 a first cut program for instructing to cut the substrate along the width each time the substrate is printed a predetermined length; and

a second cut program for instructing, when printing of the one or plural pieces of data has finished, to cut the substrate along a line between a printed region and a non-printed region of the substrate.

10 25. The data processing program according to claim 23, wherein identification executed by said identification program is made based on a format identifier attendant to each piece of data.

15 26. The data processing program according to claim 23, further comprising:

a line feed code detection program for detecting, when determination made by said determination program indicates that the one or plural pieces of data includes only the text data, a line feed code that may exist in the text data;

20 a prescribed code detection program for detecting a prescribed code that may exist immediately before or after the line feed code detected during detection of the line feed code by said line feed code detection program; and

25 a line feed code deletion program for deleting, when detection made by said prescribed code detection program

indicates that the prescribed code is not detected through  
detection of the prescribed code by said prescribed code  
detection program, the line feed code detected through  
detection of the line feed code by said line feed code  
5 detection program.

27. The data processing program according to claim 26,  
wherein the prescribed code includes a punctuation code  
representative of a punctuation mark, a delimiting code  
representative of a period, comma, colon, or semicolon, and  
10 itemization code designed for using at a head of each line  
of a printed document in an itemization.

28. The data processing program according to claim 23,  
further comprising:

a space character code detection program for detecting,  
15 when determination made by said determination program  
indicates that the one or plural pieces of data include only  
the text data, a space character code that may exist in the  
text data;

a space counter control program for incrementing a  
20 count value of a space counter by one each time when the  
space character code is consecutively detected from the text  
data, and initializing the count value of the space counter  
to zero when a code other than the space character code is  
detected during detection the space character code by said  
25 space character code detection program;

a space code number determination program for determining, when the space character code is not detected from the text data, that the count value of the space counter is equal to or greater than two indicating that two or more than two space character codes consecutively exist in the text data; and

a space code deletion program for deleting the two or more than two space character codes when determination made in said space code number determination program indicates that the count value of the space counter is equal to or greater than two.

29. The data processing program according to claim 23, further comprising:

a space character detection program for detecting that only one space character exists at a head of a first line of the text data when determination made by said determination program indicates that the one or plural pieces of data includes only the text data; and

a space character deletion program for deleting the one space character when determination made in said space character detection program indicates that a space character exists at the head of the first line of the text data.

30. The data processing program according to claim 23, further comprising:

an arranging order setting program for setting, when

determination made by said determination program indicates that the one or plural pieces of data includes only the image data, an order in which the one or plural pieces of data are arranged on a layout area; and

5           a proportional image data producing program for producing a proportionally enlarged or proportionally reduced image data so that each piece of data is proportionally enlarged or proportionally reduced to a maximum size that fits within an unoccupied layout area, the  
10           proportionally enlarged or proportionally reduced image data being produced in the order in which the one or plural pieces of data are arranged on the layout area.

31. The data processing program according to claim 30, wherein said layout program executes arranging in an  
15           orientation relative to the layout area, the proportionally enlarged or proportionally reduced image data on the layout area in the order set by said arranging order set program.

32. The data processing program according to claim 31, further comprising a layout orientation determining program  
20           for determining the orientation in which the proportionally enlarged or proportionally reduced image data are arranged on the layout area so that a firstly produced image data has a size that fits within the layout area.

33. The data processing program according to claim 30,  
25           further comprising a divided layout area setting program for



dividing the layout area into a predetermined number of partitioned areas, and wherein said proportional image data producing program produces the proportionally enlarged or proportionally reduced image data so that each piece of data is proportionally enlarged or proportionally reduced to a maximum size that fits within a designated one of the predetermined number of partitioned areas when the proportionally enlarged or proportionally reduced image data is arranged in an orientation relative to the layout area.

10           34. The data processing program according to claim 33, further comprising a comparison program for comparing an enlargement/reduction ratio of the proportionally enlarged or proportionally reduced image data with a predetermined minimum reduction ratio.

15           35. The data processing program according to claim 34, wherein said layout program executes arranging the proportionally reduced image data over two or more partitioned areas upon dividing the proportionally reduced image data into a corresponding number when comparison  
20           executed by said comparison program indicates that the enlargement/reduction ratio of the proportionally reduced image data is smaller than the predetermined minimum reduction ratio.

25           36. The data processing program according to claim 35, further comprising a warning issuing program for issuing a

warning to notify a user that the enlargement/reduction ratio of the proportionally reduced image data arranged over the two or more partitioned areas is smaller than the predetermined minimum reduction ratio.

5           37. The data processing program according to claim 23, further comprising an area dividing program for dividing, when determination made by said determination program indicates that the one or plural pieces of data includes the text data and the image data, the layout area into a text  
10       area for laying out the text data and an image area for laying out the image data according to a predetermined ratio, and wherein said layout program comprises an image layout program for laying out one or more image data, each of the  
15       one or more image data having been enlarged or reduced by the same proportion, into the image area; and a text layout program for laying out one or more text data in the text area.

          38. The data processing program according to claim 37, wherein said text layout program executes arranging the text  
20       data in portions of the image area not occupied by image data.

          39. The data processing program according to claim 38, wherein the predetermined ratio for dividing the layout area into the text area and the image area is variable.

25           40. The data processing program according to claim 39,

further comprising a comparison program for comparing an enlargement/reduction ratio of the proportionally enlarged or proportionally reduced image data with a predetermined minimum reduction ratio, wherein the predetermined ratio is  
5 changed to increase the image area when comparison executed by said comparison program indicates that the enlargement/reduction ratio of the proportionally reduced image data is smaller than the predetermined minimum reduction ratio.

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